



Dry-Cell Battery Recycling

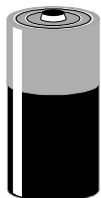
PREVENTION

MANAGEMENT

CLEAN-UP

Wisconsin Department of Natural Resources • Waste Management Program

P.O. Box 7921 • Madison WI • 53707-7921 • 608/266-2111



Most dry-cell batteries contain substances that could harm human health and the environment and may contain valuable metals such as silver.

Consumer dry cell battery uses include power tools, watches, video cameras, calculators, hand-held vacuum cleaners and flashlights. These are defined as all batteries not used for commercial, industrial or national defense purposes.

Industrial and commercial uses include military applications, instruments and monitoring equipment, medical equipment, communications and signalling applications.

This fact sheet classifies batteries alphabetically by their types and lists where they can be recycled. Not all dry-cell batteries resemble the graphic to the left.

Alkaline

Used in cameras, portable radios, cassette players, and toys; depending on battery age and manufacturer, the battery contains between .025-1% mercury, with .025% or less mercury in new low mercury alkalines; 0 ppm added cadmium; 0 ppm added mercury in the newest formulations

◆ Recycling Facility:

Recovery and Reclamation, Inc. batteries are shredded, components are separated and then recycled through third parties.

Alkaline-Rechargeable

Used for same purposes as alkaline

◆ Recycling Facility

These batteries can be recycled by an alkaline battery recycling facility.

Lead Acid Sealed

Often used for lawn tools, video camcorders, portable computers; rechargeable

◆ Recycling Facility:

Kinsbursky Brothers Supply is a secondary recycler of a variety of battery types. They break down the battery into its separate components and then all the parts are recycled.

Lithium

Used in cameras, computers, watches; lithium is highly reactive which poses safety hazards in handling; contains carbon monofluoride

◆ Recycling Facilities:

Recovery and Reclamation, Inc. discharges the batteries and recovers the metal casings. Electrode materials recycled off-site.

◆ Other:

BDT, Inc. treats lithium batteries by neutralizing the lithium. The drawn-off water solution is discharged to a wastewater treatment plant and the casing and solid residues are landfilled. No lithium product is yielded.

Mercury Refining Company sends these batteries off-site to be deactivated and landfilled.

Trade Waste Incineration directly incinerates lithium batteries.

Mercuric Oxide

Used in hearing aids, watches, cameras, medical devices; contain 35% or more mercury

◆ Recycling Facilities:

Bethlehem Apparatus is a mercury recycler. They remove the mercury cell from its container, decontaminate it, and then redistill it. The yielded mercury is marketed and the process residue is landfilled.

Mercury Refining Company recycles mercuric oxide batteries in the same manner as Bethlehem Apparatus.

Nickel-Cadmium

Used for purposes similar to alkaline; computers; rechargeable; 17% cadmium by weight

◆ Recycling Facilities:

Inmetco recovers the nickel from these batteries, whether they are potted in devices or in a separate unit. Smelting is used to recover the nickel and iron. The cadmium goes into a wastewater treatment sludge, and eventually to a zinc refinery. Inmetco is an industrial nickel-cadmium battery processor willing to accept consumer nickel-cadmium batteries.

Kinsbursky Brothers Supply uses its secondary recycling techniques to recover the heavy metals from these nickel-cadmium batteries.

Mercury Refining Company will accept nickel-cadmium batteries and send them to a processing facility in France (SNAM) which recovers the nickel and cadmium.

SAFT NIFE Inc. consolidates and ships these batteries to Oskershamn, Sweden to recover the metals. The nickel, cadmium and iron metals are separated and reclaimed using a pyrometallurgical process.

Silver Oxide

Used in calculators, cameras/photo equipment, hearing aids, watches; 1 % mercury by weight; available in 30+ sizes

◆ Recycling Facilities:

Handy and Harmon is a precious metals refinery facility specializing in silver-containing battery recycling. Cannot accept mercury-containing wastes.

Kinsbursky Brothers Supply is a precious metals refinery which places the silver found in these batteries into marketable bars of silver.

Mercury Refining Company first recovers the mercury and then hammermills the residue to separate the silver casings from the electrode residuals. The casings go to a precious metal recycler.

Zinc-Air-Consumer

Used in hearing aids and pagers; a "long-life" battery; 1 % mercury by weight

◆ Recycling Facility:

There are no known recycling facilities for this battery, although as the mercury content decreases toward zero, these batteries should be recyclable in an alkaline battery recycling process.

Zinc-Air-Industrial

Used in signal applications such as railroad signals and maritime buoys; mercury free

◆ Recycling Facility:

SAFT NIFE Inc. recovers all material in zinc-air batteries. They send the zinc to a contracted smelter and recycle the remaining material.

Zinc-Carbon or Zinc-Chloride (Heavy duty batteries)

Used for purposes similar to alkaline; mercury 1 ppm - 100 ppm depending on age; cadmium 5 - 100 ppm; no mercury or cadmium formulas have been available since 1990 for most common battery sizes

◆ Recycling Facility:

Recovery and Reclamation, Inc. batteries are shredded, components are separated and recycled by third parties.

Please see the next page for addresses of these facilities.

Facilities

This listing is supplied as an example of recyclers of battery wastes which may be generated by your facilities. *It must not be construed as a recommendation or an approved list in any way.* Instead, the Department strictly encourages your personnel to visit each site prior to sending any material to them in order for you to determine whether the recycler is capable of properly handling and recycling your waste and, further, whether their facility and waste management methods represent an acceptable risk to your organization.

BDT, Inc.
4255 Research Parkway
Clarence, NY 14031
Sharon Wienckowski, Customer Service
716/634-6794
U.S. EPA ID#: NYD000632372

*Battery Solutions, Inc.
38680 Michigan Avenue
Wayne, MI 48184
Ed Green, Vice President
313/467-9110
U.S. EPA ID#: M1G000031425

Bethlehem Apparatus
890 Front St.
Hellertown, PA 18055
Bruce J. Lawrence, President
215/838-7034
U.S. EPA ID#: PAD002390961

Handy and Harmon
300 Rye Street
South Windsor, CT 06074
Matthew Fischer
203/282-0871
U.S. EPA ID#: CTD981205271

Inmetco
PO Box 720
Ellwood City, PA 16117
Phyllis Whitver, Customer Service
412/758-5515
U.S. EPA ID#: PAD087561015

Kinsbursky Brothers Supply
1314 N. Lemon St.
Anaheim, CA 92801
Todd Coy, Customer Service
714/738-8516
U.S. EPA ID#: CAD088504881

Mercury Refining Company (MEREKO)
790 Watervliet-Shaker Rd.
Latham, NY 12110
David Cohen, Director
800/833-3505
U.S. EPA ID#: NYD048148175

Recovery and Reclamation, Inc.
P.O. Box 571
Pecos, TX 79772
Joe Basham
800/999-9549
U.S. EPA ID#: TXD988077640

SAFT NIFE Inc.
711 Industrial Boulevard
Valdosta, GA 31601
Chip Wildes, Environmental Mgr; x357
Joyce Pike, Recycling Supervisor; x365
912/247-2331
U.S. EPA ID#: GAD063152573

Trade Waste Incineration (TWI)
#7 Mobile Ave.
Sauget, IL 62201
Pat Swengross, Customer Service
618/271-2804
U.S. EPA ID#: ILD098642424

* Battery Solutions, Inc. acts as a consolidation point for generators of batteries. The facility segregates batteries by chemistry, then DOT packages and ships in bulk quantities to the proper permitted facility. This service ensures each recycling facility receives only the battery types that they can recycle.